



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,713	01/30/2006	Wolfgang Rzadki	32860-000867/US	9155

30596 7590 05/03/2007
HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 8910
RESTON, VA 20195

EXAMINER

AVILA, STEPHEN P

ART UNIT	PAPER NUMBER
----------	--------------

3617

MAIL DATE	DELIVERY MODE
-----------	---------------

05/03/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/527,713

Applicant(s)

RZADKI ET AL.

Examiner

Stephen Avila

Art Unit

3617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>031105,051305</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The preliminary amendment has been received. The substitute specification filed with that amendment has been entered.

Drawings

1. The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Applicant is required to furnish a drawing under 37 CFR 1.81(c). No new matter may be introduced in the required drawing. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d).

It is noted that this application appears to not have any of the drawings filed.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, all of the features claimed must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet,

Art Unit: 3617

and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 2, 19-22, 30, 31 and 36-38 are objected to because of the following informalities: see below. Appropriate correction is required.

In claim 2, line 7, "MW" should be reinserted after "to 8".

In claim 2, last line the spelling of "having" should be corrected.

In claim 19 "the bow-end vessel protection area SSB-4" has no clear antecedent.

In claim 20 "the midships vessel protection area SSB -2" has no clear antecedent.

In claim 21 "the bow-end vessel protection area SSB-4" and "the midships vessel protection area SSB-2" have no clear antecedents.

In claim 22 "the midships vessel protection area SSB-2", "the third vessel protection area SSB-3" and "the midships vessel protection area SSB-2" have no clear antecedents.

Art Unit: 3617

In claim 30 "the stern-end vessel protection area SSB-1" and "the third vessel protection area SSB-3" have no clear antecedents.

In claim 31 "the midships vessel protection area SSB-2" has no clear antecedent.

In claim 32 "the bow-end vessel protection area SSB-4" has no clear antecedent.

In claim 36 "the stern-end vessel protection area SSB-1", "the POD propulsion segment" and "the vessel operating engineering" have no clear antecedents.

In claim 37 "the midships vessel protection area SSB-2", "the two gas-turbine-powered generators", "the two waterjet propulsion segments" and "the midships vessel protection area SSB-2" have no clear antecedents.

In claim 38 "the third vessel protection area SSB-3", "the bow-end vessel protection area SSB-4", "the two fuel cell segments", "the diesel reformer", "the thruster segment", "the third vessel protection area SSB-3" and "the bow-end vessel protection area SSB-4" have no clear antecedents.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 3, 7-10, 13-15, 21-26 and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schliehthorst in view of WO 02/057132.

Schliehthorst discloses a corvette (column 4, line 22) vessel type equipment system comprising a vessel hull 15 matched to the corvette vessel type equipment system

Art Unit: 3617

(column 4, line 22) on a size and requirement specific basis, standard equipment segments 13 formed from standard units and components arranged in accordance with the requirements in the vessel hull of the corvette vessel type equipment system and installable in vessel hulls of different vessel type equipment systems (column 4, lines 20-26). Not disclosed by Schliehthorst is a frigate. Schliehthorst does not disclose that a propulsion segment includes a combination of POD propulsion segment in the form of a completely electrical lightweight POD propulsion system and having a power of 6-8MW and includes two waterjet propulsion segments in the form of twin waterjet propulsion systems and having a power of 12-16 MW.

Note the frigate ship of WO 02/057132 which has a propulsion segment including a combination of POD propulsion segments 3 in the form of a completely electrical lightweight POD propulsion system and including two waterjet propulsion segments 5 in the form of twin waterjet propulsion systems.

In view of the POD propulsion segments 3 of WO 132 and the two waterjet propulsion segments 5 of WO 132, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to provide to the corvette ship of Schliehthorst a propulsion segment including a combination of POD propulsion segments in the form of a completely electrical lightweight POD propulsion system and having a power of 6-8 MW and including two waterjet propulsion segments in the form of twin waterjet propulsion systems and having a power of 12-16 MW. Motivation to do so is to provide sufficient power for the POD's and sufficient power for the jet drives and to specify a high speed naval surface vessel

Art Unit: 3617

which does not have at least one of the disadvantages of survival capability and also to be capable of operation without any emissions up to cruise speed.

Schliehthorst does not disclose a thruster segment for his corvette ship. Note the thruster segment 9 of WO 132. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to provide to the corvette ship of Schliehthorst a thruster segment similar to 9 of WO 132. Motivation to do so is to provide such a thruster to help steer the vessel in a harbor. It would further have been obvious to make the bow jet thruster a 0.3MW bow jet thruster. Motivation to do so is to provide adequate power for the thruster.

The combination of Schliehthorst and WO 132 does not disclose that the distance between the center of the POD propulsion segment and a nose of a traction propeller of the POD propulsion segment and the nozzle outlet openings of the pods of the waterjet propulsion segments is at least 14M or 15M; however, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to make the distance as such to avoid interference of the POD propellers by the waterjets.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to make the corvette vessel of Schliehthorst broaden as claimed in claim 8 and to have the structure with strength

sufficient to absorb the axial forces which occur as a result of the operation of the POD propulsion segment in view of what is shown in figure 2 of WO 132. Motivation to do so is to provide sufficient support for the POD propulsion segments.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to have the corvette vessel of Schliehthorst have a power generator segment formed from a combination of at least one of two fuel cell segments each having a power of approximately 4.5MW or 6MW and generator segments each having a power of approximately 16 MW in view of WO 132 using fuel cells units for the electrical steering propellers which are distributed in a decentralized manner in the vessel. Motivation to do so is to take advantage of the environmentally friendly fuel cells and to make sure that there is enough power produced by the generators and fuel cells.

It further would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains in view of the use of fuel cells by WO 132 to provide Schliehthorst with two fuel cell segments which include two air breathing PEM fuel cells associated with them in order to supply them with hydrogen with either one diesel reformer with a power of approximately 9MW or two diesel reformers each having a power of approximately 4.5 MW and to have a power generator segment be distributed over a number of ship protection areas SSB-2, SSB-3 and SSB-4 in the vessel equipment system. Motivation to do so is to use a type of full

Art Unit: 3617

cell that is advantageous and environmentally friendly, to use a diesel reformers which provide sufficient power and to spread the power generators along the ship to protect them from damage.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to have the POD propulsion system provided to Schliehthorst in view of WO 132 be designed to travel at a continuous cruise speed of approximately 12-14 knots and be supplied with electrical power in this operating state by way of two fuel cell segments, to travel at a top speed of approximately 30 knots and be supplied with electrical power in this operating state by way of two gas –turbine powered generators, to supply the waterjet propulsion segments with electrical power from at least one of the fuel cell segments until the power limit of the at least one fuel cell is reached in order to start up these waterjet propulsion segments with low emissions, to have the system achieve speeds of more than 35 knots by operating a POD propulsion system and waterjet propulsion segments simultaneously in which case the distribution of the electrical power which is produced by way of the power generator segment can be achieved with optimized efficiency by way of the power distribution segment and energy management for an automation carrier system vessel, and to have a power distribution segment be a propulsion network which is fed from fuel cells and by which a POD propulsion segment is supplied with electrical power and has a generator fed propulsion network which supply electrical power to the waterjets.

Note that WO 132 uses fuel cells to supply electricity to the electrical motors of the POD's and that electrical power for the electrical motors of the water jets is obtained from gas turbine generator sets.

Motivation to do so is to obtain sufficient speeds for the vessel and to provide electrical power to the electrical motors in an environmentally friendly manner.

Further it would have been obvious to form the vessel of Schliehthorst as a frigate as taught by WO 132 for improved speed.

4. Claims 4, 5, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schliehthorst and WO 02/057132 as applied to claim 2 above, and further in view of Ries et al.

The combination of Schliehthorst and WO 132 does not disclose the electrical motors of the propulsion systems and the generators as being synchronous machines with field windings composed of high temperature superconductors and with stator windings in the form of air gap windings.

Ries et al discloses a boat propulsion system with an electric motor of a synchronous machine with field windings composed of high temperature superconductors and stator windings in the form of air gap windings.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to use the teachings of Ries et al to modify the electrical motors and generators of the combination of Schliehthorst and WO 132 such that they are synchronous machines with field windings composed of

Art Unit: 3617

high temperature superconductors and with stator windings in the form of air gap windings.

Motivation to do so is to make sure that the generators and electrical motors are very efficient.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schliehthorst and WO 02/057132 as applied to claim 2 above, and further in view of Kiekhaefer.

The combination of Schliehthorst and WO 132 does not disclose the waterjet propulsion segments as being equipped with a coaxial exhaust gas nozzle segment.

Note that Kiekhaefer discloses a coaxial exhaust gas nozzle segment. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to provide the waterjet propulsion segments of the Schliehthorst and WO 132 combination with coaxial exhaust gas nozzle segments similar to those of Kiekhaefer. Motivation to do so is to have the exhaust gas mix with the waterjet for effective dispersal of the exhaust.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

Art Unit: 3617

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-37 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-40 of copending Application No. 10/527,718. Although the conflicting claims are not identical, they are not patentably distinct from each other because the differences would have been obvious to a person of ordinary skill in the art at the time the invention was made.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sadler et al is cited to show the warship with standardized operating units. Drefs et al is a 371 of WO 02/057132 and is provided to include a translation of WO 02/057132. Mueller et al is cited to show the automation and platform management system for a navel vessel. Rzaeki et al is cited to show the electric energy supply system for a ship.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Avila whose telephone number is 571-272-

6678. The examiner can normally be reached on Monday to Thursday from 7 AM to 3 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samuel J. Morano can be reached on 571-272-6684. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stephen Avila
Primary Examiner
Art Unit 3617

Avila
4/27/07